

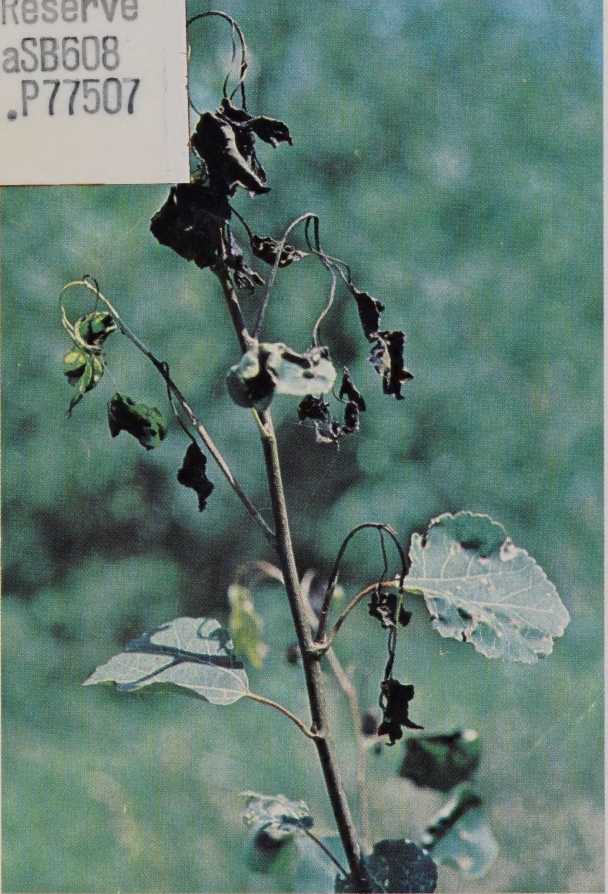
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HOW TO

Identify SHOOT BLIGHT OF POPLARS

Reserve
aSB608
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North Central Forest Experiment Station
Forest Service - U.S. Department of Agriculture

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SHOOT BLIGHT OF POPLARS

A leaf and shoot blight of juvenile poplars is caused by the fungus *Venturia macularis* (imperfect stage: *Pollaccia radiosa*). It infects eastern cottonwood (*Populus deltoides*), trembling aspen (*P. tremuloides*), bigtooth aspen (*P. grandidentata*), and hybrids of poplars in sections Leuce (white poplars), and Aigeiros (black poplars). A closely related species, *Venturia populina* (imperfect stage: *Pollaccia elegans*), infects only balsam poplars in the section Tacamahaca.

Both *Venturia* species can become epidemic on native and introduced poplars. Only the leaves and shoots of the current year's growth are affected by this disease. Infection occurs on young leaf and stem tissues early in the growing season. Later in the season, as these tissues mature, they become resistant to attack.

Symptoms first appear in May on leaves near shoots infected the previous season. Infected leaves have irregular brown to blackened areas; these affected portions become curled and distorted. Infected shoots turn black, brittle, and characteristically curl to resemble a "shepherd's crook". Death of



Infected aspen sucker. Note characteristic curling ("shepherd's crook") of shoots and blackened leaves.

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Leaf spots caused by rainsplashed conidia.



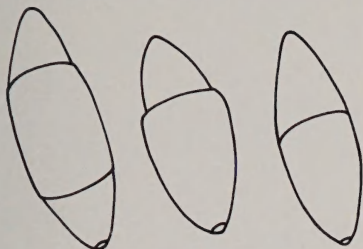
terminal and lateral shoots can distort the form of a tree causing shrubby growth. These primary infections are predominately caused by conidia produced from the mycelium in shoots killed the previous season. (Occasionally infection is caused by ascospores which develop in the dead leaves on the ground.) An olive-green layer of conidia develops on newly infected tissues. Prolonged periods of rainfall are required for the dispersal of conidia, which are rain-splashed to other parts of the new growth causing secondary infections that can multiply rapidly. The disease can cause growth losses that may be serious in poplar nurseries and plantations where poplars are grown under short-rotation intensive management. After repeated attacks, small trees can die due to suppression and infection by other disease organisms.

Trees growing in dense stands are often more heavily infected than those growing at wider spacings. Taller trees may be unaffected while adjacent seedlings and suckers are heavily infected. No chemicals are now registered for control of this disease. Disease severity varies among host species and between hybrid clones, some being more resistant than others.

SPORES

Look for:

An olive-green layer of conidia on the surface of infected leaves and stems.



Conidia of
V. macularis.

Conidia are hyaline to olive in color, 1 to 2 septate, truncate at base, and 15 to 42 by 6 to 11 microns in size.

Two-week-old culture of *V. macularis*. Fungus grows mostly on top of the agar surface. Conidia are produced on the surface of the olive-green colony.



CULTURING TECHNIQUES

- Cultures can be obtained by either isolating from infected tissues or by germinating spores.
- Surface sterilize infected leaves or stem sections in a 10-percent solution of household bleach and water for 1 minute.
- Remove from solution and cut a 3-mm section including both healthy and necrotic tissue.
- Place section on top of malt agar in petri dish and incubate at 68° F for 10-15 days.
— or —
- Place an aqueous suspension of spores on malt agar and incubate at 68° F until spores germinate.



Heavy infection on young seedlings and suckers can distort the form of the trees. Repeated attacks can cause growth losses and stunting.

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CATALOGING PREP.

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